



# Public Health Assessment for

**ACKERVILLE AREA GROUNDWATER  
[a/k/a TOWN OF POLK LANDFILL (FORMER)]  
TOWN OF POLK, WASHINGTON COUNTY, WISCONSIN  
EPA FACILITY ID: WIN000508147  
AUGUST 20, 2003**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE**

Agency for Toxic Substances and Disease Registry

## THE ATSDR PUBLIC HEALTH ASSESSMENT: A NOTE OF EXPLANATION

This Public Health Assessment was prepared by ATSDR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) section 104 (i)(6) (42 U.S.C. 9604 (i)(6)), and in accordance with our implementing regulations (42 C.F.R. Part 90). In preparing this document, ATSDR has collected relevant health data, environmental data, and community health concerns from the Environmental Protection Agency (EPA), state and local health and environmental agencies, the community, and potentially responsible parties, where appropriate.

In addition, this document has previously been provided to EPA and the affected states in an initial release, as required by CERCLA section 104 (i)(6)(H) for their information and review. The revised document was released for a 30-day public comment period. Subsequent to the public comment period, ATSDR addressed all public comments and revised or appended the document as appropriate. The public health assessment has now been reissued. This concludes the public health assessment process for this site, unless additional information is obtained by ATSDR which, in the agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Ackerville Area Groundwater  
[a/k/a Town of Polk Landfill (Former)]

Final Release

## PUBLIC HEALTH ASSESSMENT

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[a/k/a TOWN OF POLK LANDFILL (FORMER)]

TOWN OF POLK, WASHINGTON COUNTY, WISCONSIN

EPA FACILITY ID: WIN000508147

Prepared by:

Wisconsin Department of Health and Family Services  
Division of Public Health

Prepared for:

Washington County Health Department  
Wisconsin Department of Natural Resources  
Under a Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry



## FOREWORD

The Agency for Toxic Substances and Disease Registry, ATSDR, was established by Congress in 1980 under the Comprehensive Environmental Response, Compensation, and Liability Act, also known as the *Superfund* law. This law set up a fund to identify and clean up our country's hazardous waste sites. The Environmental Protection Agency, EPA, and the individual states regulate the investigation and clean up of the sites.

Since 1986, ATSDR has been required by law to conduct a public health assessment at each of the sites on the EPA National Priorities List. The aim of these evaluations is to find out if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be stopped or reduced.

(The legal definition of a health assessment is included on the inside front cover.) If appropriate, ATSDR also conducts public health assessments when petitioned by concerned individuals. Public health assessments are carried out by environmental and health scientists from ATSDR and from the states with which ATSDR has cooperative agreements. The public health assessment program allows the scientists flexibility in the format or structure of their response to the public health issues at hazardous waste sites. For example, a public health assessment could be one document or it could be a compilation of several health consultations the structure may vary from site to site. Nevertheless, the public health assessment process is not considered complete until the public health issues at the site are addressed.

**Exposure:** As the first step in the evaluation, ATSDR scientists review environmental data to see how much contamination is at a site, where it is, and how people might come into contact with it. Generally, ATSDR does not collect its own environmental sampling data but reviews information provided by EPA, other government agencies, businesses, and the public. When there is not enough environmental information available, the report will indicate what further sampling data is needed.

**Health Effects:** If the review of the environmental data shows that people have or could come into contact with hazardous substances, ATSDR scientists evaluate whether or not these contacts may result in harmful effects. ATSDR recognizes that children, because of their play activities and their growing bodies, may be more vulnerable to these effects. As a policy, unless data are available to suggest otherwise, ATSDR considers children to be more sensitive and vulnerable to hazardous substances. Thus, the health impact to the children is considered first when evaluating the health threat to a community. The health impacts to other high risk groups within the community (such as the elderly, chronically ill, and people engaging in high risk practices) also receive special attention during the evaluation.

ATSDR uses existing scientific information, which can include the results of medical, toxicologic and epidemiologic studies and the data collected in disease registries, to determine the health effects that may result from exposures. The science of environmental health is still developing, and sometimes scientific information on the health effects of certain substances is not available. When this is so, the report will suggest what further public health actions are needed.

**Conclusions:** The report presents conclusions about the public health threat, if any, posed by a site. When health threats have been determined for high risk groups (such as children, elderly, chronically ill, and people engaging in high risk practices), they will be summarized in the conclusion section of the report. Ways to stop or reduce exposure will then be recommended in the public health action plan.

ATSDR is primarily an advisory agency, so usually these reports identify what actions are appropriate to be undertaken by EPA, other responsible parties, or the research or education divisions of ATSDR. However, if there is an urgent health threat, ATSDR can issue a public health advisory warning people of the danger. ATSDR can also authorize health education or pilot studies of health effects, full-scale epidemiology studies, disease registries, surveillance studies or research on specific hazardous substances.

**Interactive Process:** The health assessment is an interactive process. ATSDR solicits and evaluates information from numerous city, state and federal agencies, the companies responsible for cleaning up the site, and the community. It then shares its conclusions with them. Agencies are asked to respond to an early version of the report to make sure that the data they have provided is accurate and current. When informed of ATSDR's conclusions and recommendations, sometimes the agencies will begin to act on them before the final release of the report.

**Community:** ATSDR also needs to learn what people in the area know about the site and what concerns they may have about its impact on their health. Consequently, throughout the evaluation process, ATSDR actively gathers information and comments from the people who live or work near a site, including residents of the area, civic leaders, health professionals and community groups. To ensure that the report responds to the community's health concerns, an early version is also distributed to the public for their comments. All the comments received from the public are responded to in the final version of the report.

**Comments:** If, after reading this report, you have questions or comments, we encourage you to send them to us.

Letters should be addressed as follows:

Attention: Chief, Program Evaluation, Records, and Information Services Branch, Agency for Toxic Substances and Disease Registry, 1600 Clifton Road (E60), Atlanta, GA 30333.

## TABLE OF CONTENTS

SUMMARY .....	1
PURPOSE AND HEALTH ISSUES .....	1
BACKGROUND .....	2
Setting and History .....	2
Monitoring Well Results .....	3
Private Well Results .....	4
Soil Sample Results .....	5
DISCUSSION .....	5
Groundwater .....	5
Private Well Water Quality .....	5
Bridge Construction Project .....	7
Community Health Concerns and Health Statistics .....	7
Child Health Issues .....	8
CONCLUSIONS .....	8
RECOMMENDATIONS .....	8
PUBLIC HEALTH ACTION PLAN .....	9
CERTIFICATION .....	10
RESPONSE TO PUBLIC COMMENTS .....	11
Attachment A: Common Questions and Answers .....	15
Attachment B: DHFS Review of Cancer Statistics .....	17





## **SUMMARY**

The Department of Natural Resources (DNR) asked the Department of Health and Family Services (DHFS) to evaluate the health implications of groundwater sampling results in the Town of Polk, and in areas near two landfills in Ackerville, Washington County, Wisconsin. The Washington County Health Department also requested assistance from DHFS in addressing community health concerns regarding drinking water quality and health statistics for the same areas. This public health assessment addresses requests from both agencies.

Limited groundwater contamination exists in the area of two former landfill sites located west and northwest of Ackerville. The contaminants of concern in the groundwater are trichloroethylene (TCE) and arsenic. One private drinking water supply well contains a trace level of TCE that is not a health concern. Although groundwater contamination is not impacting other nearby private wells, the presence of TCE in this well is an indication that ongoing monitoring is necessary. Elevated arsenic has been found in a monitoring well, but not in any drinking water supply wells.

A citizens group, formed to oppose a highway expansion project, including a portion that passes through Ackerville, has raised concerns about the rates of cancer in the area. The group has also suggested the possibility of a relationship between the cancer rates and contamination from a nearby landfill. They have expressed concerns that the bridge construction project would result in a greater spread of contamination. A DHFS review of the cancer statistics for the Ackerville Zip Code found no statistically significant difference from the expected statewide rates.

A DNR evaluation of nearby groundwater contamination and the bridge construction project concluded that groundwater quality and movement would not be affected by the project. In April, 2002 the Department of Transportation (DOT) installed six monitoring wells and has sampled them quarterly for five quarters. The DOT investigation so far confirms DNR's conclusion. Sampling of these wells will continue until at least January of 2004.

DHFS, in coordination with the Washington County Health Department, will continue to provide accurate health information to the community.

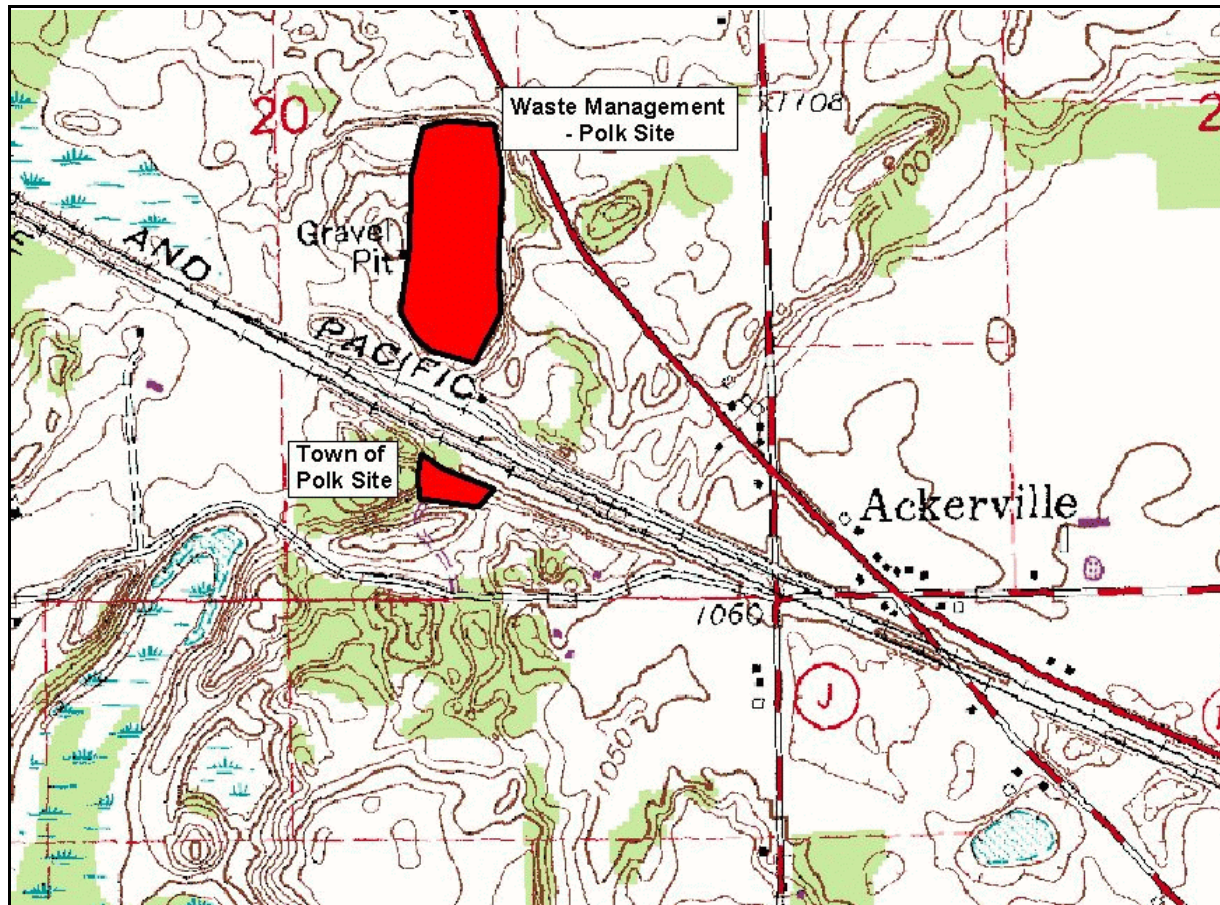
## **PURPOSE AND HEALTH ISSUES**

The purpose of this public health assessment is to describe the existing health issues related to Ackerville groundwater quality in the area of two closed landfills. Community health concerns about a planned bridge construction project and cancer statistics in the area are also addressed. This report includes input from public comments received during the public comment period for the project and updated information from a DOT groundwater investigation.

Because a public health hazard was not identified during the public health assessment process, the public health action plan for this project focuses on providing information to concerned citizens (see Attachment A). Additionally, DHFS will provide technical assistance to the Washington County Health Department to address these issues.



## BACKGROUND



**Figure 1:** Locations of closed landfill sites in Ackerville.

### *Setting and History*

The unincorporated Village of Ackerville is in south central Washington County near the intersection of State Highway 164 and State Highway 175, in the Town of Polk. This rural area does not have dense residential development. The closed Waste Management of Wisconsin Polk Landfill and the closed Town of Polk Landfill are located about  $\frac{3}{4}$  mile to the northwest and west of Ackerville, respectively. The landfills are separated by the Milwaukee, St. Paul & Pacific railroad tracks. Groundwater from these sites flows east and southeast in the direction of Ackerville (1). Refer to Figure 1 for the general locations of the landfill sites and Ackerville.

The Town of Polk landfill (Town of Polk) was constructed in a former gravel pit and operated for a short period between 1970 and 1971. This landfill was closed without the installation of groundwater monitoring wells.

The Waste Management Polk Landfill (Waste Management) comprises approximately 9 acres, and is 900 feet north of the Town of Polk landfill. Waste Management operated the site from approximately 1971 to 1981. In the mid-1980s several monitoring wells were installed as part of the long-term monitoring plan for this landfill. As a result of this monitoring plan, two areas of



groundwater contamination were identified. Petroleum-related contaminants are clearly contaminating groundwater east of the site. The petroleum contaminants break down a short distance from the waste area. Groundwater in an area southeast of the Waste Management site and northeast of the Town of Polk site contains TCE. This contamination has not been directly linked to either of the landfills (2).

In response to DNR concerns regarding the amount of leachate (i.e., liquid within the waste material) in the landfill, Waste Management has been extracting leachate from the waste mass since 1987. In the fall of 1998, Waste Management improved the efficiency of the leachate collection system. The leachate from this landfill does not contain TCE. An upgraded landfill gas extraction system was also installed in a series of trenches cut into the landfill (3).

Area private wells were sampled for volatile organic compounds (VOCs) in May of 1984. Two of the wells contained trichloroethylene (TCE). Both wells contained TCE above the state and federal drinking water standard of 5.0 parts per billion (ppb). The highest level of TCE detected in either well was 17 ppb. Both wells were abandoned and replaced with deeper wells. Since their installation, these deeper replacement wells have tested clean.

Two monitoring well nests located next to the railroad tracks between the two landfills have consistently shown elevated arsenic concentrations. These levels have occasionally exceeded the current Wisconsin Groundwater Enforcement Standard of 50 ppb, as well as the expected lower future threshold of 10 ppb. The state and federal maximum contaminant limit for public water supplies was recently reduced to 10 ppb. Arsenic concentrations in the leachate for the Waste Management facility have not been significantly elevated (generally <10 ppb).

DOT has been working on a long-term highway expansion project extending through parts of Waukesha and Washington counties. On February 10, 2000, a local citizens group opposing the expansion of State Highway 164 petitioned the Environmental Protection Agency (EPA) to investigate Waste Management for possible inclusion on the National Priorities List of Superfund Sites. The highway project in this area involves constructing a bridge overpass over both Highway 175 and a two-track railroad line. As part of its basis for this request, the group expressed concern about the existing groundwater contamination and area cancer rates (1, 7, 8).

In April of 2000, in response to citizen concerns about groundwater quality, DNR sampled four nearby private wells for VOCs, including TCE. No VOCs were detected in those samples. Under a cooperative agreement with the EPA, DNR staff conducted additional investigation of soils and groundwater in an attempt to identify a source of the TCE and arsenic contamination. The sampling for this investigation took place during March and April of 2001. As part of this investigation, four additional groundwater monitoring wells were installed and sampled, 15 soil samples were collected, and seven existing monitoring and private wells were also sampled.

#### *Monitoring Well Results*

The monitoring well samples collected in 2001 were analyzed for VOCs, semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), cyanides and metals. No pesticides, PCBs or cyanides were detected. TCE was detected in samples from three of the wells at concentrations ranging from 0.6 to 0.8 ppb. Bis(2-ethylhexyl)phthalate was found in

one well at 19 ppb. Iron and manganese were elevated in many of the samples. The highest iron concentration was 1,970 ppb. The highest manganese level was 315 ppb. Arsenic was not detected in any of the wells. The highest lead level was 2.6 ppb. Only bis(2-ethylhexyl)phthalate was at a level that would be of health concern if it were in a drinking water supply well. The Wisconsin Groundwater Enforcement Standard for bis(2-ethylhexyl)phthalate, a common laboratory contaminant, is 5.0 ppb.

In the spring of 2002, DOT installed three monitoring well nests (total of six wells) in the area of the bridge construction project. These wells were sampled in April, July, and October of 2002, and January and April of 2003 as part of a two year, quarterly monitoring program. The results of those samples identified low level VOC contamination consistent with the results of previous groundwater samples for this project. Table 1 contains a summary of those results for the April, July, and October sampling rounds, and Figure 2 shows monitoring well locations.(13)

Trichloroethylene, benzene and chloroform were found in some of the wells. These chemicals were each found below their health based groundwater and drinking water standards. Three other VOCs found are not chemicals of concern for this project because they are believed to be from the well installation process itself. Bromodichloromethane and dibromochloromethane are byproducts of chlorination and likely came from the use of a large volume of water from a municipal water supply known to contain them. These two chemicals were found in the first round of samples collected from one well and were not found in any well during the second round of sampling. Toluene was also found in four of the wells in the first round of samples following construction. It is common to find low levels of toluene in well water as a result of materials used during well installation. Samples from two of those four wells contained toluene during the sampling round conducted in July. The level of toluene in the July sample results decreased significantly from the samples collected in April.

No VOCs were detected in samples collected during the October sampling round. However, a different laboratory was used from the previous two sampling rounds for this round. The VOC detection limits were above some of the trace level detections reported in previous rounds. These levels of detection were low enough, however, to be protective of public health. In April of 2003, methylene chloride was the only chemical found in any of the well samples. This chemical was found in a quality control sample and is a common laboratory contaminant. Methylene chloride is not believed to be in any of the wells.

Samples from each of these wells were analyzed for arsenic. Arsenic was detected in samples from each well in the October 2002 sampling round. The level of detection for arsenic used in this round is considerably lower than it had been in the past and at appropriate screening levels. The arsenic results do not indicate a trend or the presence of a source of contamination.

#### *Private Well Results*

During the DNR 2001 investigation the four nearest private wells were again sampled. One well contained a very low level of TCE (0.16 ppb). Resampling of this well confirmed the detection of TCE (0.3 ppb). This well had been sampled the previous year and no TCE was detected, at least with a detection limit of 0.2 ppb. No other VOCs were detected in area private wells. DHFS does not consider drinking water containing TCE below 5.0 ppb (Wisconsin Groundwater

Enforcement Standard, and the Federal Maximum Contaminant Limit) to pose a health hazard. Nevertheless, the presence of TCE in a drinking water supply indicates that the well is vulnerable to contamination. The private wells were also sampled for arsenic to address concerns about the localized arsenic found in a landfill monitoring well (9). Three of the four private well samples contained arsenic between 1.1 and 1.9 ppb. These levels are commonly found in Wisconsin groundwater and do not indicate a contamination source. DHFS does not consider drinking water arsenic levels below 10 ppb to pose a public health concern.

Each private well contained high levels of iron ranging between 1,800 and 4,000 ppb. The Wisconsin groundwater standard for iron based on aesthetic quality is 300 ppb. These levels are consistent with the poor taste and odor of the water reported by area residents, but are not a health concern. In addition to elevated iron, a number of nuisance bacteria were identified. One well had particularly high counts of common nuisance bacteria. High iron is a naturally occurring problem in many wells in this area. Nuisance bacteria is typically related to the condition of an individual well. The well with the most significant level of bacterial contamination was itself in poor condition and not in compliance with well construction codes.

#### *Soil Sample Results*

The soils collected were taken from soil borings at various depths to identify potential contaminant source areas. The samples were analyzed for VOCs, SVOCs, pesticides, PCBs, cyanide, and metals. No odor or staining was noticed at any of the sample locations. None of the samples contained VOCs, SVOCs, PCBs, or cyanide. Arsenic was consistently detected between 0.94 and 3.7 milligrams per kilogram. These levels are within the range of arsenic naturally occurring in Wisconsin soils and do not indicate a source of contamination (10). One soil sample contained the pesticide breakdown product endrin aldehyde at 4.6 micrograms per kilogram. Due to the lack of toxicity testing, there are no health-based soil thresholds for endrin aldehyde. Endrin is a solid, white, almost odorless substance formerly used as a pesticide to control insects, rodents, and birds. Endrin has not been produced or sold for general use in the United States since 1986 (12).

## **DISCUSSION**

### *Groundwater*

Groundwater samples collected during the 2001 DNR site investigation contained TCE in one private well and three monitoring wells. All of the detected TCE concentrations were below 1.0 ppb and are not a health concern. It is clear from historic and current sampling results that groundwater near the landfill sites is contaminated. The chlorinated solvent TCE is the contaminant of concern because it has moved from the area and entered private wells (4). The DOT wells installed near the bridge project contain low level VOC contamination. Although none of the VOCs were found at levels of health concern, their presence indicates that periodic monitoring of nearby private wells is appropriate.

One monitoring well sample contained the common laboratory contaminant bis(2-ethylhexyl)phthalate. Previously, this chemical had not been considered a contaminant of concern at this site and is likely not present in area groundwater. The level detected would be of health concern if found in a drinking water supply (1).

### *Private Well Water Quality*

Residents of the Ackerville area have expressed concerns about the safety of their well water. They have based their concerns on taste and odor problems, as well as rumors of nearby contamination, which have received considerable local attention.

In the 1980s the residents of two households were exposed to TCE in their well water above safe drinking water standards. If it is conservatively assumed that contamination began immediately following waste disposal in the early 1970s, these exposures would not result in a measurable health risk.

TCE is a chlorinated solvent and is one of the most common groundwater contaminants in Wisconsin. DHFS is concerned about TCE in groundwater because long-term exposures to TCE can increase a person's risk of developing cancer. At the highest levels of TCE historically detected in area groundwater, those risks are relatively low. Still, because these risks are unnecessary and avoidable, steps were taken by the DNR to prevent exposures (11). More information about TCE, including the full text of the Agency for Toxic Substances and Disease Registry Toxicologic Profile, can be found at the following Web site:

<http://www.atsdr.cdc.gov/toxprofiles/tp19.html>

Arsenic analysis in the four private wells found only those levels of arsenic that occur naturally in Wisconsin groundwater. The levels detected were below both the existing groundwater standard of 50 ppb and below the lower, proposed safe drinking water level of 10 ppb. DHFS currently issues health advice to well owners with arsenic levels greater than 10 ppb. Arsenic is a naturally occurring element commonly found in Wisconsin groundwater. The area around Ackerville is not an area considered to be a high risk for naturally occurring arsenic at levels of health concern. There are, however, sporadic occurrences of the bedrock unit that have been implicated as a source of high arsenic in this area. For this reason, and because arsenic levels in the at-risk areas can change over time, well owners might want to sample their wells periodically for arsenic. For more information about arsenic in private well water, please refer to the following Web site: <http://www.dhfs.state.wi.us/eh/Water/index.htm> or search on *Arsenic* at the following Web site: [www.wi.gov](http://www.wi.gov)

Although not of health concern, all of the private wells contained naturally occurring chemicals that are causing taste and odor problems. Each well contained substantial quantities of iron and detectable nuisance bacteria; in fact, some wells contained very high nuisance bacteria levels. These bacteria will magnify the aesthetic problems caused by the high iron levels. Conditions specific to each well—including improper well construction in some cases—are the causes of bacterial contamination. The nuisance bacteria identified (*Crenothrix*, *Gallionella*, and *Leptothrix*) are not harmful to humans. That said, however, the condition of a well that allows their entry and encourages their growth can also make the well susceptible to organisms that can cause health problems. One of the four wells was found to be constructed in an old frost pit that is subject to flooding. The well owner was informed of this unsanitary condition and provided with information on how to correct the problem.

Although, changes in the taste, odor, and clarity of well water can be an indication of a water quality change that can also include substances of health concern, TCE, coliform bacteria,



arsenic, lead and related contaminants do not generally have taste, odor, or clarity warning properties. More information about these common private well water quality problems, as well as how to address them, can be found on the following Web sites:

DNR web page covering common water quality problems and solutions

<http://www.dnr.state.wi.us/org/water/dwg/priweltp.htm>

USEPA web page addressing common questions about drinking water quality

<http://www.epa.gov/safewater/dwhealth.html>

Water Quality Association web page for diagnosing common water problems

<http://www.wqa.org/>

#### *Bridge Construction Project*

The effect of the roadway expansion on area groundwater has been a central concern expressed by the group opposed to the construction project. In August 2000, DNR concluded that the proposed roadway expansion and bridge construction would not alter the existing flow of groundwater, nor would it affect the degree and extent of contamination in the area (4). The specific project in question is a bridge overpass intended to reduce a public safety hazard posed by the existing railroad crossing.

#### *Community Health Concerns and Health Statistics*

The group opposed to the expansion of Highway 164 felt a number of existing private wells were contaminated, but no sample results were provided at the time to support that belief. This resulted in many area residents contacting DNR, DHFS, and the Washington County Health Department to express concerns about water quality. Members of this group later stated that their evidence of contamination was the very poor aesthetic quality of some area private wells.

Members of the group requested data on the total number of cancer cases from the Cancer Reporting System maintained by DHFS. The total number of cancer cases for each year were provided for each of two Zip Codes. Zip Code 53086 includes the Ackerville area and the Village of Slinger. The adjacent 53076 Zip Code includes the Richfield area. The group did not ask that an interpretation of the analysis of the data be included in their request for the numbers. Without guidance from an epidemiologist, the group was not able to correctly interpret the numbers and incorrectly assumed that any cancer in the area was likely caused by contamination from the landfills.(7,8)

First, people cannot be harmed by contaminants present in the environment if they are not exposed to them at high enough levels over long enough time to cause illnesses. DHFS did identify exposure to contaminants in drinking water, but the levels are far below those levels known to cause disease. Furthermore, the population of the Slinger/Ackerville Zip Code is considerably larger than that of neighboring Richfield. The Slinger/Ackerville population is also proportionally older than that of Richfield. Both of these factors would lead epidemiologists to expect a greater number of cancer cases in the Slinger/Ackerville Zip Code than the Richfield Zip Code (5,6).

In May of 2000, DHFS Bureau of Environmental Health staff obtained and reviewed the cancer data used by the roadway opposition group. It was quickly noted that the group was comparing total numbers of cancers between the two Zip Codes without considering the significant size difference between the two Zip Code populations. Individual cancer types were also not identified in this data, and no age adjusting of the data was performed. The DHFS review of this data did not identify a discrepancy between the Zip Codes or the expected statewide rates. The conclusion of the DHFS review stated "... that Zip code 53076 experiences an all cancer risk that is slightly and significantly lower than the state's, while residents in Zip code 53086 have an all cancer risk that is no different from the rest of the state's." A copy of the letter provided to the Washington County Health Department regarding that review is attached. None of the cancer questions or concerns raised by this group were specific to any of the individuals residing in the homes with existing or past TCE contamination. For these reasons a more thorough evaluation of health statistics would not be beneficial and is not planned.

Concerns were also raised by a local health care professional who believed more than a usual amount of aggressive and unusual cancer was occurring in the young adult population. DHFS pointed out that Zip Code-wide cancer statistics would not identify the subtle observations that might be seen in a localized clinic setting. The clinic was encouraged to gather the data on the cases believed to be unusual and to pursue follow up if the data so warranted.

Staff from DHFS and the Washington County Health Department have met with community members in the past and continue to respond to numerous questions from the public regarding the health implications of the bridge project. The issue has been discussed during several meetings of the Washington County Board of Health including two joint meetings with community members interested in the project. A general fact sheet was created to answer a number of the common questions raised about the project.

#### *Child Health Issues*

Children are often more sensitive to the impacts of chemical exposures for a number of reasons related to their development and behavior. Parents of small children are naturally concerned about environmental hazards. DHFS has not identified a public health hazard related to this project. The one chemical contaminant (TCE) identified in an existing private well was found below levels of health concern for children or adults.

## **CONCLUSIONS**

- Although one private well has tested positive for a trace level of TCE, none of the private wells in this area contain contamination at levels of health concern. At this time, the groundwater contamination does not pose a public health hazard to people in the area.
- There is limited groundwater contamination in the Ackerville area west of the intersection of Highways 164 and 175.
- Concerns about taste and odors in private well water are the result of aesthetic problems from naturally occurring iron levels as well as the presence of nuisance bacteria.

*Public Health Assessment for Ackerville Area Groundwater*

- Cancer rates for the Ackerville Zip Code are not elevated when compared to statewide rates or the neighboring Richfield Zip Code.
- Because there has been very little human exposure to contaminants of concern at this site a more thorough evaluation of health outcome data is not warranted.

**RECOMMENDATIONS**

- The private wells nearest to the area of TCE-contaminated groundwater should be monitored periodically for VOCs.
- Accurate information about the health and environmental conditions in this area should be provided to the community.

**PUBLIC HEALTH ACTION PLAN**

DNR will make decisions about periodic monitoring for TCE in groundwater near private wells.

DHFS will continue to provide accurate health information to the community. DHFS has worked with DNR to develop a fact sheet answering some common questions about this site. This fact sheet has been provided to community members. If needed, the fact sheet will be updated to address changing conditions, questions and concerns related to the site.

In the past, DHFS has participated in public meetings with the Washington County Board of Health on this topic. DHFS will continue to provide technical support to the Washington County Health Department as requested.

**Report Author**

Chuck Warzecha  
DHFS, Division of Public Health



### **Certification**

This public health assessment for Ackerville Area Groundwater was prepared by the Wisconsin Department of Health and Family Services under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the public health assessment was begun.

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Technical Project Officer, S.P.S., SAAB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health assessment and concurs with the findings.

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Chief, State Program Section, DHAC, ATSDR



## **RESPONSE TO PUBLIC COMMENTS**

This section contains a summary of the public comments received regarding the content of the Public Health Assessment along with an explanation of how those comments are addressed in the final health assessment. The responses are preceded by the comments, restated to remove personal identifiers and statements not related to the content of the public health assessment. Statements not directly related to the public health assessment were forwarded to other agencies for their response. Only comments that suggest changing the document are included.

Comment: A request was made to include the results from the round of groundwater monitoring wells installed by the Department of Transportation near the bridge project site in the final Public Health Assessment.

Response: Information from five quarters of sampling of those wells has been evaluated and included in the document as requested.

Comment: A concern has been raised that DHFS did not collect environmental data independently from the data collected by other parties involved in the project. The concern was expressed that DHFS should have conducted a separate “independent analysis to either verify or disclaim the information stated from other reports.”

Response: DHFS can collect a limited number of samples to fill information gaps when absolutely necessary. However, we do not have the resources that would be needed to duplicate the efforts of others. The State of Wisconsin has strict professional requirements for contractors and laboratories to ensure the validity of the information provided from those sources. DHFS staff believe that the existing data available are valid for evaluation of the conditions at this site.

Comment: The report identifies that lab contaminants were found in the water samples. This raises concerns about the usefulness of all of the data.

Response: DHFS does look closer at the results when common laboratory contaminants are found in samples. None of the contaminants of concern for the case are among the laboratory contaminants found and re-sampling of the wells has consistently confirmed our understanding of actual groundwater quality in the area.

Comment: The public health assessment does not recommend additional investigation of petroleum contamination found near the Waste Management landfill site.

Response: Petroleum contaminants found in groundwater have not been found at levels of public health concern. This comment has been forwarded to DNR for their consideration because it relates to the ongoing monitoring of the waste disposal facilities in the area.

Comment: Add the date of sampling to the statement in the last sentence of the third paragraph on page three.

Response: This has been added as requested.

*Public Health Assessment for Ackerville Area Groundwater*

Comment: The arsenic contamination poses a major health risk because it is close to a landfill.

Response: The elevated arsenic is a cause for concern in a location between a landfill and railroad tracks, but it does not appear to be moving from this area. In this case the arsenic does not pose a health risk because it is not found in or near a drinking water well.

Comment: Since the Town of Polk Landfill was closed without monitoring wells, why not make a recommendation to monitor the leachate in the landfill.

Response: Groundwater sampling information in the area near this landfill is sufficient to make a public health determination. DNR may choose to recommend additional investigation of this landfill based on additional factors. This suggestion has been forwarded to DNR for their consideration.

Comment: The presence of VOC's may not only impact the drinking water but also the air quality of homes that have with VOC's in their water.

Response: This statement is true. However, at this site private wells are not impacted at a level that poses a health hazard for exposure through any use of the water.

Comment: DHFS should immediately order the WisDOT to stop all construction on the Ackerville Bridge/Lovers Lane Reconstruction Project.

Response: DHFS does not believe there is public health justification for intervening in this project.

Comment: The groundwater contamination issues are much more serious than this public health assessment is leading people to believe.

Response: This public health assessment is written to present the chemical exposures and health implications in a fair and balanced manner.

Comment: Arsenic was found in [a residential well] at a level about twice the U.S. EPA Health Advisory Level.

Response: The arsenic level in this well was found to be 1.9 parts per billion. This value is actually more than five times lower than EPA's Health Advisory Level of 10 parts per billion. Wells in Wisconsin commonly contain arsenic at this level and it does not indicate a contamination problem.

Comment: The existence of taste, odor and color problems with the private well water in Ackerville should raise "red-flags" that there are serious problems with this water which need to be immediately addressed to protect the health and safety of the people of this area.

Response: The presence of taste, odor, and color problems are indications of problems with the water. However, the problems indicated do not relate to the contamination in this area. Each well owner was provided with information and specific recommendations on how to address these problems.

Comment: The public health assessment has improperly dismissed the valid citizen concerns about the elevated individual cancer rates among residents of the Ackerville area without first doing further cancer studies of this area. The public health assessment has also ignored the health concerns expressed by [local pathologist], who asked that the DHFS conduct further



health and medical studies to determine the cause of the elevated cancer rates in the Ackerville area population. The DHFS has the resources (i.e., our tax dollars) and expertise to collect data from Ackerville's residents who have been affected by cancer and then conduct these studies. The DHFS should immediately begin collecting detailed data directly from the Ackerville area residents about their families' experiences with cancer while living in this area. This data should be used to determine the frequency and types of cancer cases occurring in the Ackerville area, and this site-specific data then should be compared with data collected from other areas farther away from Ackerville. We are confident that this type of comparative data analysis would prove that cancer rates are significantly higher for Ackerville area residents and their families.

Response: Unfortunately, DHFS does not have unlimited resources for conducting detailed epidemiological investigations. Instead, DHFS makes the decision to conduct an investigation when there is either an indication of widespread chemical exposure that could plausibly result in elevated rates of disease within the population, or if an unusually large number of a specific type of disease is identified within a geographic area. In this case neither condition exists. There has been very limited exposure to chemical contaminants related to this project area. None of those exposures would be expected to result in a measurable increased level of illness. The pathologist referred to in this comment expressed concerns about cancer statistics summarized for two Zip-codes. A review of these statistics by a DHFS epidemiologist found that cancer rates for the area are not different from what we would expect to see in other parts of Wisconsin. Pathologists and other medical professionals who can document unusually high rates of a specific disease in a population should report that information to DHFS. The pathologist involved with this project has been informed of this process. No specific reports that suggest there are elevated disease rates in the Ackerville area have been made to DHFS.



Table 1  
WDOT STH 164 Project, Groundwater Sample Results  
Highest Detect for the period April 11, 2002, through April 10, 2003 (13)

Parameter VOCs - all units micrograms per liter (µg/L)	MW-1	PZ-1	MW-2	PZ-2	MW-3	PZ-3	Health Advisory Level
Benzene	ND	ND	ND	ND	0.15	0.23	5.0
Bromodichloromethane	ND	ND	ND	ND	ND	1.7	0.6
Chloroform	ND	2.2	ND	0.71	ND	2.8	6.0
Dibromochloromethane	ND	ND	ND	ND	ND	0.86	60
Methylene chloride	ND	0.71*	0.67*	0.86*	0.46*	0.54*	5.0
Toluene	0.39	ND	0.39	ND	0.24	12	1000
Trichloroethylene	ND	ND	1.0	ND	0.29	ND	5.0
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.12	480
Metals							
Arsenic	0.77	1.8	0.51	3.2	1.0	0.84	10

\* Methylene chloride is a common laboratory contaminant and is not believed to be in the actual samples for these wells. It was detected in only the last round of samples. It was also found in the quality control sample (trip blank) sent to the lab for the sam round.

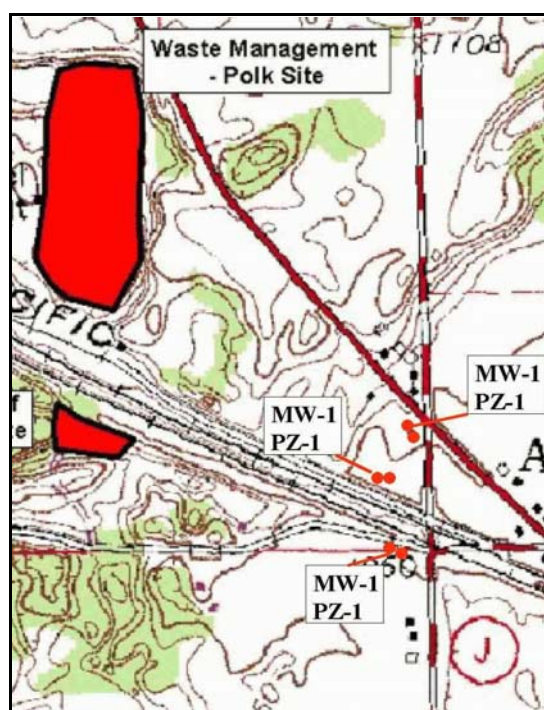


Figure 2: Monitoring Well Locations



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**Attachment A: Common Questions and Answers**

**Questions and Answers about Groundwater Quality  
in the Ackerville Area**

May, 2001

Residents in the Ackerville area have raised questions about the quality of their drinking water. This fact sheet answers some of the commonly asked questions.

**Q.** What do we know about drinking water quality in this area? Is our water safe to drink?

**A.** All available sample results from private wells in this area indicate that the water is currently safe to drink. Some groundwater contamination has been found in the area near two old landfills. Two shallow drinking water wells were replaced with deeper, bedrock wells in the late 1980s because of this contamination. The replacement wells have been clean ever since. Recently, a private well near the two landfills was found to contain a trace level of the same contamination. This well did not contain the chemical when tested last year.

**Q.** What is the chemical that was found, and what does it mean to find it?

**A.** This chemical is a chlorinated solvent called trichloroethylene, or TCE. It is one of the most commonly found groundwater contaminants in Wisconsin. This is the same chemical that was found in the late 1980s in the private wells that were replaced. The recently reported contaminant was found at more than 30 times below the unsafe drinking water level for that chemical. Although water from that well continues to be safe to drink, it is an indication that there is more work to be done.

**Q.** My water tastes and smells bad, does that mean our groundwater is contaminated?

**A.** No. Taste and odor problems in well water often indicate that there is a naturally occurring iron problem or the growth of nuisance bacteria. Recent tests of a nearby well with severe taste and odor complaints found a significant nuisance bacteria problem. These bacteria do not travel in groundwater; rather, they grow in the well itself because of problems with well construction and unsanitary conditions around the well. Unfortunately, most chemical contaminants do not have taste and odor warning properties. For this reason, the Department of Natural Resources (DNR) sampled many private wells last year and again this year, and found them all to be chemically safe.

**Q.** What do we know about groundwater contamination near the old Town of Polk landfill?

**A.** The DNR is currently sampling soils and groundwater at the old Town of Polk Landfill to determine if this area is a possible source of the groundwater contamination. Initial test results indicate that any TCE that may be present is extremely low level and is not originating from either of the two landfills. In fact, the results confirm previous conclusions that the presence of low level TCE that could be related to past railroad activities (engine degreaser) and not the landfills.

*Public Health Assessment for Ackerville Area Groundwater*

Q. Is it true that the bridge construction project will make groundwater contamination worse in our area?

A. No. There is no relationship between the proposed bridge construction project and area groundwater quality. The groundwater is 30 feet below the ground surface, and will not be affected by the bridge or road construction.

Q. There are rumors that cancer statistics show unusually high cancer rates in this area. Is this true?

A. No. This is not true. Some individuals, however, have been misrepresenting the actual cancer statistics in that way. The rates of cancer in this area are not higher than the neighboring zipcode or cancer rates statewide.

Q. I have been experiencing health problems. Should I be concerned about the quality of my drinking water?

A. If you are having health problems you should contact your physician. The information currently available about groundwater quality in the Ackerville area has not identified any groundwater quality problems expected to cause health effects.

Q. How can I get my well tested?

A. Contact a private commercial laboratory or environmental consulting firm from your local directory. We recommend an annual test for coliform bacteria as an indicator of the general sanitary condition of your well. If you would like a test for chemical solvents, ask for a VOC test for drinking water. This typically costs \$150-\$200 by an EPA-certified method. Either Method 524.2 or method 8260 is appropriate. Some labs do noncertified testing for less, but the results may not be as reliable. If you are concerned about arsenic or other contaminants you must specifically ask for that to be tested. More information about well testing can be found on the DNR internet site, or by calling the Drinking Water Specialist in your local DNR office.

Q. Who can I contact for more information.

A. For more information about the following topics please contact:

**Groundwater Quality**

Chad Czarkowski  
(414) 263-8628  
DNR - Milwaukee

**Landfill Investigation**

Jim Delwiche  
(414) 229-0846  
DNR – Milwaukee

**Health Questions**

Chuck Warzecha  
(608) 267-3732  
DHFS – Madison

*This information was developed by the Departments of Natural Resources and Health and Family Services.*



**Attachment B: DHFS Review of Cancer Statistics**

May 31, 2000

Ms. Linda Walter, Director  
Washington County Health Department  
Suite 1100  
333 E. Washington Street  
West Bend, WI 53095

FAX: 262-335-4705

Dear Ms. Walter,

Our Department recently provided you with a count of cancer incident cases for two Zip Codes: 53076 and 53086. The data described newly diagnosed (incident) cancer cases for the years 1980 through 1997.

I would like to provide you with an additional perspective on the counts. There were 147 cases in Zip code 53076, and 351 cases in Zip code 53086. During the same time period, the state as a whole experienced 398,653 incident cancer cases (see Table 1).

Unfortunately the counts themselves do not describe risk. In looking at Table 1, we cannot determine that residents in Zip code 53086 experience a higher cancer rate than do residents in Zip code 53076. To ascertain risk, we need to calculate incidence rates for both groups. We then customarily compare cancer rates to the state as a whole.

I have calculated cancer incidence rates for males and females (Tables 2 and 3). Using Poisson regression, I have compared the two Zip codes to the statewide rates. Poisson regression was used to control for age and year of diagnosis. The relative risk (RR) tells us if the Zip code rate is higher or lower than what has been experienced statewide. A number greater than one (1) indicates a higher rate, while a number less than one indicates a rate lower than the state's.

Table 2 shows that, for females in Zip code 53076, the all cancer risk was significantly lower than the state's rate (RR = 0.668, P Value = 0.0006) while for Zip code 53086, the rate was not significantly different from the state's (RR = 1.07, P Value = 0.315). Upper (U95CI) and lower (L95CI) confidence intervals at the 95% level are also provided for the relative risk estimate.

Table 3 shows that, for males residing in Zip code 53076, the all cancer risk was significantly lower than the state's rate (RR = 0.68, P Value = 0.0011). For Zip code 53086, the rate was not significantly different from the state's (RR = 0.86, P Value = 0.0796).

Ms. Linda Walter

Page 2

From this analysis, it would appear that Zip code 53076 experiences an all cancer risk that is slightly and significantly lower than the state's, while residents in Zip code 53086 have an all cancer risk that is no different from the rest of the state's.

I hope that these analyses have provided you will a more complete perspective on the cancer counts. Please contact me if have any questions on these analyses.

Sincerely,

**[original signed by Lawrence Hanrahan - 5/31/00]**

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CC Laura Stephenson-Vine

**Table 1**  
**Wisconsin Cancer Incidence - All Sites**  
**By Zip Code and Gender**  
**1980-1997**

<u>Zipcode</u>	<u>Gender</u>	<u>Count</u>	<u>Total</u>
53076	Female	75	
	Male	72 147	
53086	Female	194	
	Male	157 351	
STATE	Female	200,988	
	Male	197,665 398,653	

**Table 2**  
**Wisconsin Females, All Sites**  
**Age and Year Adjusted**  
**Cancer Incidence - Relative Risk (RR)**  
**1980-1997**

<u>ZIPCODE</u>	<u>DF</u>	<u>RR</u>	<u>L95CI</u>	<u>U95CI</u>	<u>P Value</u>
53076	1	0.66819	0.53119	0.84053	0.0006
53086	1	1.07485	0.93368	1.23735	0.3150
STATE	0	1.00000	1.00000	1.00000	.

**Table 3**  
**Wisconsin Males, All Sites**  
**Age and Year Adjusted**  
**Cancer Incidence - Relative Risk (RR)**  
**1980-1997**

<u>ZIPCODE</u>	<u>DF</u>	<u>RR</u>	<u>L95CI</u>	<u>U95CI</u>	<u>P Value</u>
53076	1	0.68054	0.54015	0.85743	0.0011
53086	1	0.86576	0.73688	1.01718	0.0796
STATE	0	1.00000	1.00000	1.00000	.